

**Standard Data Elements for Reporting Water Quality Results for
Chemical and Microbiological Analytes**
(12/05/2002)

This standard was developed by a partnership of states, tribes and the Environmental Protection Agency (EPA). The standard is based on the data element list for Reporting Water Quality Results for Chemical and Microbiological Analytes (RWQRCMA) developed by the National Water Quality Monitoring Council (NWQMC) and approved by the Advisory Committee on Water Information (ACWI). Where possible, this data standard will utilize existing data standards. The following EPA and Environmental Data Standards Council (EDSC) data standards are specifically referenced for use in this data standard. The [Contact Information Data Standard](#) will be used for reporting the information outlined in sections 1.1, 1.2, and 1.3. The [Date Data Standard](#) will apply anytime a date is reported. Information about analytes should be collected in accordance with the [Chemical Identification](#) and [Biological Taxonomy](#) data standards. The locational information outlined in section 5.4 should be collected according to guidance provided in the [Latitude/Longitude Data Standard](#).

The standard is intended to be used by database managers in the public and private sectors and the general public with an interest in developing and using data for reporting water quality monitoring results for chemical and microbiological analytes. Water quality monitoring, an increasingly important element of water quality management activities, provides information for understanding the condition of water bodies and the trends in observed water quality. The set of data elements is intended to allow data users to share and interpret sample test results from a variety of data sources or database management systems. The inclusion of data quality information enables secondary data users to utilize the information regardless of the data's original intended use. This State/EPA data standard was approved by the Environmental Data Standards Council on August 21, 2002.

Data Element Name	Data Element Definition	Notes	Format
1.0 Point of Contact Data Elements <i>Definition:</i> Identifies the source of the analytical results, the organization or person related to sample collection, and the laboratory that provided the analysis.			
1.1 Sources of Data <i>Definition:</i> Identifies the primary source or providers of data to the system, whether within or outside the Agency, where questions about the sample analytical results may be directed. (Alternate Names: Data owner, Data Source, Sampling Entity, Laboratory Name and address) <i>Note:</i> Reference the Contact Information Data Standard . The following items are expected to define the Sources of Data needed for Section 1.1: Individual Full Name, Organization Formal Name, Affiliation Type, Mailing Address, Supplemental Address Text, Mailing Address City Name, Mailing Address State Name, Mailing Address State Code, Mailing Address Country Name, Mailing Address Country Code, Mailing Address Zip Code/International Postal Code, Telephone Number, Telephone Number Type Name, Electronic Address Text, Electronic Address Type Name.			
1.2 Sampling Entity/Person <i>Definition:</i> Identifies the organization or person where questions about the sample collection may be directed. <i>Note:</i> Reference the Contact Information Data Standard . The following items are expected to define the Sampling Entity/Person information needed for Section 1.2: Individual Full Name, Organization Formal Name, Affiliation Type, Mailing address, Supplemental Address Text, Mailing Address City Name, Mailing Address State Name, Mailing Address State Code, Mailing Address Country Name, Mailing Address Country Code, Mailing Address Zip Code/International Postal Code, Telephone Number, Telephone Number Type Name, Electronic Address Text, Electronic Address Type Name.			
1.3 Laboratory /Field <i>Definition:</i> Identifies the organization or person where questions about the laboratory analysis may be directed. Field denotes measurements conducted in the field. <i>Note:</i> Reference the Contact Information Data Standard . The following items are needed for defining the Laboratory/Field information needed for Section 1.3: Individual Full Name, Organization Formal Name, Affiliation Type, Mailing Address, Supplemental Address Text, Mailing Address City Name, Mailing Address State Name, Mailing Address State Code, Mailing Address Country Name, Mailing Address Country Code, Mailing Address Zip Code/International Postal Code, Telephone Number, Telephone Number Type Name, Electronic Address Text, Electronic Address Type Name.			

Data Element Name	Data Element Definition	Notes	Format
2.0 Result and Analyte Identification Data Elements <i>Definition:</i> Includes the result value with units to be used for reporting an analysis and the identification information for the analyte being reported.			
2.1 Result Data Elements <i>Definition:</i> Includes the result value with units to be used for reporting and analysis.			
2.1.1 Result Value XML Tag: ResultValueMeasure	The reportable numerical measure of the result for the chemical or microbiological analyte, or other characteristic being analyzed.		A(15)
2.1.2 Result Value Unit of Measure XML Tag: ResultValueUnitMeasureName	The code representing the name of the standard of measurement used for reporting the numerical measure of an analysis.	The follow are possible values and other values may be used. ¹ - $\mu\text{g/L}$ - micrograms per liter - pCi/L - pico-Curies per liter - CFU/mL - colony forming units per milliliter	A(10)
2.2 Analyte Data Elements <i>Definition:</i> Identification information for a chemical, biological or radiological substance or other entity included in analysis. Note: An Analyte Name Context Name should be provided for each Analyte Name. An Analyte Identifier Context Name should be provided for each analyte identifier.			
2.2.1 Analyte Name (Alternate Names: Analyte, Constituent, Contaminant, Parameter, Chemical, Characteristic Name, Taxon, Metric, Index, Biological Systemic Name, Biological Group Name, Biological Vernacular Name, Chemical substance Systemic Name, Chemical Substance Synonym, EPA	The name assigned to a chemical, biological or radiological substance or feature that describes it in terms of its molecular composition, taxonomic nomenclature or other characteristic (e.g, physical measure).		A(60)

Data Element Name	Data Element Definition	Notes	Format
Chemical Registry Name.) XML Tag: AnalyteName			
2.2.2 Analyte Name Context Name (Alternative Names: Chemical Name Context, Biological Systematic Context Name, Biological Group Context Name, Biological Vernacular Name Context Name) XML Tag: AnalyteNameContextName	The name of the classification system used to assign a name to an analyte.		A(30)
2.2.3 Analyte Identifier/Number (Alternate Names: EPA Chemical Internal Tracking Number, EPA Chemical Identifier, Constituent Identification Number; Chemical Abstracts Service Registry Number, ITIS Taxonomic Serial Number, ICTVdB Taxon Identifier) XML Tag: AnalyteIdentifier	The unique number assigned to the analyte.	If the analyte is a chemical, the receiving system must be able to access and use other identifying information (Chemical Abstracts Service Registry Number/EPA Chemical Identifier, Systematic Name, and EPA Chemical Registry Name) linked to the EPA Chemical Internal Tracking Number. ITIS is the Integrated Taxonomic Information System. ICTVdb is the International Committee on Taxonomy of Viruses Database	A(12)
2.2.4 Analyte Identifier Context Name XML Tag: AnalyteIdentifierContextName	The name of the classification system used to assign a systematic name to an analyte identifier.	The following are possible values and other values may be used: <ul style="list-style-type: none"> - EPA Chemical Internal Tracking Number - Chemical Abstracts Service Registry Number (CASRN) - EPA Identification Number (EPA ID also known as an “E” number) - PC Code - STORET Number - ITIS Taxonomic Serial Number (TSN) - ICTVdB Taxon Identifier 	A(30)

Data Element Name	Data Element Definition	Notes	Format
3.0 Reason for Sampling Data Elements <i>Definition:</i> Provide the purpose for collecting the sample			
3.1 Reason for Sample Collection XML Tag: ReasonSampleCollectionText	The text describing the purpose for obtaining the sample.	See also 6.1 Sample Type Text. The following are possible values and other values may be used: <ul style="list-style-type: none"> - Reconnaissance/ Occurrence Survey - Trend analysis - Permit Compliance - Pollution Event - Storm Event - Research - Regulatory Benchmark - Bioaccumulation - Deposition - Other 	A(1999)
4.0 Date/Time Data Elements <i>Definition:</i> The date and time relating to an event, such as sample collection. <i>Note:</i> The Date Data Standard will apply anytime a date is reported. The format of a date should be YYYYMMDD.			
4.1 Sample Collection Start Date (Alternate Names: Date; Sample Collection Date; Sampling Date; Year, Month and Day) XML Tag: SampleCollectionStartDate	The calendar date when collection of the sample was started.	Reported as 4-digit year, 2-digit month, and 2-digit day in YYYYMMDD format.	date: YYYYMMD D
4.2 Sample Collection Start Time Measure (Alternate Names: Time; Sample Collection Time; Collected; Collected End; Hour and Minute; Hour, Minute and Second) XML Tag:	The measure of clock time and time zone when collection of the sample was begun.	Reported as a 24-hour day with 2-digit hour, 2-digit minute, and 2-digit second.	time: HH24:mm:ss

Data Element Name	Data Element Definition	Notes	Format
SampleCollectionStartTimeMeasure			
4.3 Sample Collection End Date (Alternate Names: Date; Sample Collection Date; Sampling Date; Year, Month and Day) XML Tag: SampleCollectionEndDate	The calendar date when collection of the sample was finished.	Reported as 4-digit year, 2-digit month, and 2-digit day in YYYYMMDD format.	date: YYYYMMDD
4.4 Sample Collection End Time Measure (Alternate Names; Sample Collection Time; Collected; Collected End; Hour and Minute; Hour, Minute and Second) XML Tag: SampleCollectionEndTimeMeasure	The measure of clock time and time zone when collection of the sample was finished.	Reported as a 24-hour day with 2-digit hour, 2-digit minute, and 2-digit second.	time: HH24:mm:ss
5.0 Sampling Station Location Data Elements <i>Definition:</i> Provides identification and locational information about a sampling station.			
5.1 Water Body/Aquifer Name (Alternate Name: Receiving Water Name) XML Tag: WaterBodyAquiferName	The name of the lake, stream, river, estuary, aquifer, reach name in the National Hydrography Dataset or other water feature related to the physical site.		A(120)
5.2 Sample Station Identifier (Alternate Names: Sampling Station/Facility Identification Number; Site Number, Well Identifier) XML Tag: SampleStationIdentifier	The name or number that uniquely identifies the sample station.		A(15)
5.3 Sampling Station Type Name (Alternate Names: Facility Type; Site Type) XML Tag:	The descriptive name for a type of sampling station.	The following possible values and other values may be used: - Ambient-River/Stream	A(120)

Data Element Name	Data Element Definition	Notes	Format
SamplingStationTypeName		<ul style="list-style-type: none"> - Ambient-Canal, Drainage - Ambient-Canal, Irrigation - Ambient-Canal, Transport - Ambient-Lake - Ambient-Wetland, Estuarine, emergent - Ambient-Wetland, Estuarine, forested - Ambient-Wetland, Estuarine, scrub-shrub - Ambient-Wetland, Lacustrine, emergent - Ambient-Wetland, Palustrine, emergent - Ambient-Wetland, Palustrine, forested - Ambient-Wetland, Palustrine, moss-lichen - Ambient-Wetland, Palustrine, shrub-scrub - Ambient-Wetland, Riverine, emergent - Ambient-Wetland, Constructed - Ambient-Wetland, Other - Ambient-Reservoir - Ambient-Riverine Impoundment - Ambient-Estuary - Ambient-Tidal Fresh - Ambient-Tidal Brackish - Ambient-Ocean - Ambient-Great Lake - Ambient-Subsurface, Well - Ambient-Subsurface, Spring - Ambient -Subsurface unsaturated/vadose zone - Ambient-Spring - Water Supply/Source Influent- Raw/untreated water (drinking/com/ind) - Water Supply/Source Influent- Finished/treated water for drinking,) From treatment system - Water Supply/Source Influent- Finished/treated water for drinking, Entry Point to the distribution system after treatment 	

Data Element Name	Data Element Definition	Notes	Format
		<ul style="list-style-type: none"> - Water Supply/Source Influent- Finished/treated water for drinking, Within the distribution system- Water Supply/Source Influent- Finished/treated water for drinking, End of the distribution system with longest residence time - Water Supply/Source Influent- Finished/treated water for drinking, Point in distribution system with lowest disinfection residual - Water Supply/Source Influent- Finished/treated water for drinking, Household/ drinking water tap - Water Supply/Source Influent- Finished/treated water for drinking Water Supply/Source Influent- Finished/treated water for drinking- Unknown (comment field) - Within treatment process (comment field) - Wastewater/Effluent-End of pipe - Wastewater/Effluent-Within mixing zone - Wastewater/Effluent-Downstream from mixing zone - Wastewater/Effluent-Upstream from mixing zone - Storm Sewer - Combined Sewer - Land Runoff - Mine/Mine Drainage - Landfill - Waste Pit - Other 	

Data Element Name	Data Element Definition	Notes	Format
5.4 Latitude and Longitude Measure Data Elements <i>Definition:</i> Latitude: The measure of the angular distance on a meridian north or south of the equator in degrees and decimal degrees. Longitude: The measure of the angular distance on a meridian east or west of the prime meridian in degrees and decimal degrees. <i>Note:</i> Reference Latitude/Longitude Data Standard . The following items for the Latitude/Longitude Data Standard are needed for defining the Latitude and Longitude Measure information needed for Section 5.4: Latitude Measure, Longitude Measure, Horizontal Accuracy Measure, Source Map Scale Number, Coordinate Data Source Name or Code, Horizontal Collection Method Name or Code, Horizontal Reference Datum Name or Code, and Reference Point Text or Code.			
5.5 Altitude of the Sampling Site Data Elements <i>Definition:</i> The altitude measured at the sampling site. <i>Note:</i> Reference the Latitude/Longitude Data Standard . The following items for the Latitude/Longitude Data Standard are needed for defining the Altitude of the Sampling Site information needed for Section 5.5: Vertical Measure, Vertical Accuracy Measure, Vertical Collection Method Text or Code, Vertical Reference Datum Name or Code.			
5.6 Altitude of Sampling Site Features Data Elements <i>Definition:</i> Identification of water level at the sampling site. <i>Note:</i> Each water level measure must have a related unit of measure.			
5.6.1 Surface Water Quantitative Water Level Measure (Alternate Names: Depth to Water) XML Tag: SurfaceWaterQuantitativeWaterLevelMeasure	The measure of the level of the water surface at the sampling point.	The unit of measure may be in either feet or meters.	N(14)
5.6.2 Surface Water Quantitative Water Level Unit of Measure XML Tag: SurfaceWaterQuantitativeWaterLevelUnitMeasureName	The code representing the name of the standard of measurement used for reporting the quantitative water level, where applicable.	Permitted values: - ft - feet - m - meters	A(2)
5.6.3 Surface Water Qualitative Water Level Text XML Tag:	The text that describes the surface level of water based on observable characteristics.	The following possible values and other values may be used:	A(31)

Data Element Name	Data Element Definition	Notes	Format
SurfaceWaterQualitativeWaterLevelText		<ul style="list-style-type: none"> - Tidal, high - Tidal, low - Stream Stage, flood (over bank) - Stream Stage, high - Stream Stage, medium - Stream Stage, low 	
5.6.4 Ground Water Quantitative Water Level Measure (Alternate Names: Depth to Water) XML Tag: GroundWaterQuantitativeWaterLevelMeasure	The vertical distance between the measuring point and the water surface level in a well, corrected to land surface, where the measuring point is not the land surface,	The unit of measure may be in either feet or meters.	N(14)
5.6.5 Ground Water Level Unit of Measure XML tag: GroundWaterLevelUnitMeasureName	The code representing the name of the standard of measurement used for reporting the ground water level.	Permitted values: <ul style="list-style-type: none"> - ft - feet - m - meters 	A(2)
5.6.6 Surface to Bottom Depth Measure XML Tag: SurfaceBottomDepthMeasure	The measure of the distance from the water surface to the channel or lake bottom.	This data element is to be used for surface water. The unit of measure may be in either feet or meters.	A(8)
5.6.7 Surface to Bottom Depth Unit of Measure XML Tag: SurfaceBottomDepthUnitMeasureName	The code representing the name of the standard of measurement used for reporting the ground water level.	Permitted values: <ul style="list-style-type: none"> - ft - feet - m - meters 	A(2)
5.7 Depth at Completion Data Elements <i>Definition:</i> Identification of measurements describing a well.			
5.7.1 Well Depth at Completion Measure XML Tag: WellDepthCompletionMeasureName	The measure of the total depth of the well upon completion of construction.	This data element is to be used for ground water. The unit of measure may be in either feet or meters.	N(14)

Data Element Name	Data Element Definition	Notes	Format
5.7.2 Well Depth at Completion Unit of Measure XML Tag: WellDepthUnitMeasureName	The code representing the name of the standard of measurement used for measuring the total depth of the well upon completion of construction.	Permitted values: - ft - feet - m - meters	A(2)
5.7.3 Well Open Interval Type XML Tag: WellOpenIntervalTypeText	The text describing a well open interval type.	Openings are permeable portions of the well casings or lining. Openings may be protected with screens, fractured rock, or other devices/materials.	A(200)
5.7.4 Depth to Top of Well Open Interval Measure (Alternate Name: Depth to Top) XML Tag: DepthTopWellOpenIntervalMeasure	The measure of the depth to the top of the open interval.	The unit of measure may be in either feet or meters.	N(5)
5.7.5 Depth to Top of Well Open Interval Unit of Measure XML Tag: DepthTopWellOpenIntervalUnitMeasureName	The code representing the name of the standard of measurement used for measuring the distance down to the open interval.	Permitted values: - ft - feet - m - meters	A(2)
5.8 Sample Collection Water Altitude Data Elements <i>Definition:</i> Identifies the vertical location for the sample collection.			
5.8.1 Altitude of Sample (Alternate Names: Sample Collection Water Depth) XML Tag: SampleAltitudeMeasure	The numerical measure of the vertical location of sample collection.		N(14)
5.8.2 Sample Depth/Altitude Unit of Measure (Alternate Names: Sample Collection Water Depth Unit of Measure) XML Tag: SampleDepthAltitudeUnitText	The code representing the name of the standard of measurement used for sample depth/altitude.		A(12)

Data Element Name	Data Element Definition	Notes	Format
5.9 Water Discharge Rate Data Elements <i>Definition:</i> Identifies the discharge rate of the water being sampled.			
5.9.1 Water Discharge Rate Value (Alternate Names: Flow, Yield) XML Tag: WaterDischargeRateMeasure	The numerical value of the discharge rate of the water being sampled.		A(15)
5.9.2 Water Discharge Rate Unit of Measure XML Tag: WaterDischargeRateUnitMeasureText	The code representing the name of the standard of measurement used for discharge rate of the water being sampled.		A(10)
6.0 Sample Collection Data Elements <i>Definition:</i> Identifies sample collection methodology.			
6.1 Sample Type Text (Alternate Name: Quality Control Sample Type) XML Tag: SampleTypeText	The text describing the type of sample being collected.	The following possible values and other values may be used: - Field Measurement/ Observation-Routine Measurement/ Observation - Field Measurement-Replicate Measurement/ Observation - Sample-Routine Sample - Sample-Field Blank - Sample-Field Replicate - Sample-Depletion Replicate - Sample-Integrated Time Series - Sample-Integrate Flow Proportioned - Sample-Integrate Horizontal Profile- Sample-Integrated Vertical Profile - Sample-Composite Without Parents - Sample-Positive Control - Sample-Negative Control - Sample-Other - Sample Created from Sample - Composite Sample with Parents	

Data Element Name	Data Element Definition	Notes	Format
		<ul style="list-style-type: none"> - Quality Control Sample-Trip blank - Quality Control Sample-Reagent Blank - Quality Control Sample-Equipment Blank - Quality Control Sample-Pre-preservative Blank - Quality Control Sample-Post-preservative Blank - Quality Control Sample-Field Spike - Quality Control Sample-Field Blank - Quality Control Sample-Reference Sample - Quality Control Sample-Measurement Precision Sample - Quality Control Sample-Other 	
6.2 Media Sampled Text (Alternate Names: Sample Medium Code, Water Source Type, Water Body Type) XML Tag: MediaSampledText	The text describing the environmental media sampled at a site.	The environmental material about which results are reported from either direct observation or collected samples. Includes water, sediment, precipitation and other entries as applicable.	
6.3 Sample Collection Temperature Data Elements <i>Definition:</i> Identifies the numeric temperature value, and the scale by which the value was measured, for sample at collection.			
6.3.1 Sample Collection Temperature Measure XML Tag: SampleCollectionTemperatureMeasure	The measure of the temperature of the sample when collected.		
6.3.2 Temperature Unit of Measure XML Tag: TemperatureUnitMeasure	The code representing the name of the standard of measurement used for specifying the degree of hotness or coldness of a body or environment.	Permissible Values: <ul style="list-style-type: none"> - F - Fahrenheit - C - Centigrade 	

Data Element Name	Data Element Definition	Notes	Format
6.4 Sample Identification Text (Alternate Names: Sample Number, Sample Identification Number XML Tag: SampleIdentificationText	The text describing the unique name, number, or code assigned to identify the sample.		A(12)
6.5 Sample Collection Method Text XML Tag: SampleCollectionMethodText	The text describing the method used to collect the sample.	The following are possible values and other values may be used: <ul style="list-style-type: none"> - Surface Water-Grab - Surface Water-Pump - Surface Water-Collection filter, positive charge - Surface Water-Collection filter, negative charge - Surface Water-Insitu monitor (probe) - Surface Water-Composite, Flow weighted - Surface Water-Composite, Proportional - Surface Water-Composite, Cross sectional - Surface Water-Composite, Integrated Depth - Surface Water-Other - Ground Water-High flow submersible pump - Ground Water- Low flow submersible pump - Ground Water- Bladder pump - Ground Water- Bailer - Ground Water- Other - Precipitation/ Atmospheric-Grab - Precipitation/ Atmospheric-Pump - Precipitation/ Atmospheric-Collection filter - positive charge - Precipitation/ Atmospheric-Collection filter - negative charge - Precipitation/ Atmospheric-Continuous - Precipitation/ Atmospheric-Other 	A(255)

Data Element Name	Data Element Definition	Notes	Format
		Use section 5.9 Water Discharge Rate Data Elements to specify water flow rate for Ground Water-High flow submersible pump, Ground Water- Low flow submersible pump, and Precipitation/ Atmospheric-Continuous	
6.6 Sample Preservation/Treatment Data Elements <i>Definition:</i> Identifies sample preservation and/or treatment procedures.			
6.6.1 Container Type XML Tag: ContainerTypeText	The text describing the sample container type.		A(12)
6.6.2 Container Color XML Tag: ContainerColorText	The text describing the sample container color.		A(10)
6.6.3 Container Size XML Tag: ContainerSizeText	The text describing the container size used in sample collection.		N(14)
6.6.3.1 Container Size Unit of Measure XML Tag: ContainerSizeUnitMeasureText	The code representing the name of the standard of measurement used for specifying the container size.		A(12)
6.6.4 Sample Collection Filtering Code (Alternate Name: Sample Fraction) XML Tag: SampleCollectionFilteringCode	The code indicating the type of filtering used in a field preparation.	The following are possible values and other values may be used: - F- Filtered - U- Unfiltered - SF- Specific Fraction	A(2)
6.6.5 Sample Collection Filtering Comment Text XML Tag: SampleCollectionFilteringText	The text providing descriptive information about the type of filtering used in a field preparation.		A(255)

Data Element Name	Data Element Definition	Notes	Format
6.6.6 Chemical Preservation Method XML Tag: ChemicalPreservationMethodText	The text describing the method used to preserve the sample in the field by the sampling entity.	<p>This entry is intended to include preservation techniques that are <u>NOT</u> specified as part of the <i>Analytical Method</i>, element 7.5.</p> <p>The following are possible values and other values may be used:</p> <ul style="list-style-type: none"> - Chemical added-Acidification - Chemical added-Antioxidant - Chemical added-Mercuric oxide - Chemical added-Other (comment field) - None - Other 	A(1999)
6.6.7 Chemical Preservation Method Comment Text XML Tag: ChemicalPreservationMethodCommentText	The text providing descriptive information about the chemical preservation method used.		A(255)
6.6.8 Temperature Preservation Method XML Tag: TemperaturePreservationMethodText	The text describing the temperature used to preserve the sample in the field by the sampling entity.	<p>This entry is intended to include preservation techniques that are <u>NOT</u> specified as part of the <i>Analytical Method</i>, element 7.5:</p> <p>The following possible values and other values may be used:</p> <ul style="list-style-type: none"> - Wet Ice (4° C) - Dry Ice (-78.5° C) - Cold Packs (4° C) - Refrigerated (4° C) - Frozen (0° C) - Frozen (-20° C) - Frozen (-50° C) - Freeze Dried - None - Other 	A(18)

Data Element Name	Data Element Definition	Notes	Format
6.6.9 Temperature Preservation Method Comment Text XML Tag: TemperaturePreservationMethodCommentText	The text providing descriptive information about the temperature preservation method used.		A(255)
6.7 Sample Volume Data Elements <i>Definition:</i> Identifies the volume of the sample with associated units.			
6.7.1 Sample Volume XML Tag: SampleVolumeMeasure	The numerical value of the volume of the sample.		A(8)
6.7.2 Sample Volume Unit of Measure XML Tag: SampleVolumeUnitMeasureCode	The code representing the name of the standard of measurement used for the unit of measure used in specifying the sample volume.		A(3)
6.8 Sample Weight Data Elements <i>Definition:</i> Identifies the numeric value with associated unit of measure for the sample weight.			
6.8.1 Sample Weight XML Tag: SampleWeightMeasure	The numerical value of the sample weight.		A(8)
6.8.2 Sample Weight Unit of Measure XML Tag: SampleWeightUnitMeasureCode	The code representing the name of the standard of measurement used for specifying the sample weight.		A(3)
7.0 Sample Analysis Data Elements <i>Definition:</i> Identifies the analysis and quality control parameters for the sample. Note: Some of these data elements only apply to microbiological samples. See the comments column.			
7.1 Extraction/Processing Date XML Tag: ExtractionProcessingDate	The calendar date when an extract for a sample analysis was taken for sample analysis.	Reported as 4-digit year, 2-digit month, and 2-digit day.	YYYYMMDD
7.2 Extraction Process Time	The measure of clock time and	Reported as a 24-hour day with 2-digit hour,	hh24:mm:ss

Data Element Name	Data Element Definition	Notes	Format
XML Tag: ExtractionProcessTime	time zone when the extraction of the sample was completed.	2-digit minute, and 2-digit second.	
7.3 Analysis Date (Alternate Names: Date; Year, Month, and Day) XML Tag: LaboratoryAnalysisDate	The calendar date when analysis of the analyte was finished, reported as 4-digit year, 2-digit month, and 2-digit day in YYYYMMDD format.		YYYYMMDD
7.4 Analysis Time XML Tag: LaboratoryAnalysisTime	The measure of clock time and time zone when analysis of the analyte was completed.	Reported as a 24-hour day with 2-digit hour, 2-digit minute, and 2-digit second.	hh24:mm:ss
7.5 Analytical Method Number (Alternate Names: Analytical Method, Method References) XML Tag: AnalyticalMethodNumber	The method number of the analytical method used, represented as a reference number.	The following possible values and other values may be used: - EPA (Specify method number) - ASTM (Specify method number) - SM (Specify method number) - Other	A(30)
7.6 Sample Size Data Elements <i>Definition:</i> Identifies the sample size numeric value with associated unit of measure.			
7.6.1 Sample Size XML Tag: SampleSizeMeasure	The size of the sample used for analysis.	This data element is to be used for microbiologicals only.	N(14)
7.6.2 Sample Size Unit of Measure XML Tag: SampleSizeUnitMeasureText	The code representing the name of the standard of measurement used for the size of the sample.	This data element is to be used for microbiologicals only. Permitted values: - L - Liter - mL - Milliliter	A(12)

Data Element Name	Data Element Definition	Notes	Format
7.7 Serial Dilution XML Tag: SerialDilutionNumber	The numerical factor representing the number of equal volumes of diluent added to the sample.	This is to be used for microbiologicals only. The same units as 2.1.2 Result Value Unit of Measure should be used.	N(14)
7.8 Composite Sample XML Tag: CompositeSampleText	The text that describes the compositing type for samples of microorganisms.	This data element is to be used for microbiologicals only. The following possible values and other values may be used: - Time-Flow weighted - Time-Proportional - Time-Cross sectional - Time-Integrated Depth - Flow-Flow weighted - Flow-Proportional - Flow-Cross sectional - Flow-Integrated Depth - Spatial-Flow weighted - Spatial-Proportional - Spatial-Cross sectional - Spatial-Integrated Depth - Other	A(30)
7.9 Run Batch (Alternate Names: Sample Batch Identification Number; Batch Number) XML Tag: RunBatchIdentifier	A laboratory-defined identifier for a batch of analyses done on one instrument that make up a sequence of analyses during which the instrument is continuously in control.		A(12)
7.10 Spiking Amount or Dose Data Elements <i>Definition:</i> Identifies the spiking amount or dose with units of measure added for calculating analytical precision and accuracy.			
7.10.1 Spiking Amount or Dose Added	For Chemicals: The amount (weight or volume) or final		A(12)

Data Element Name	Data Element Definition	Notes	Format
<p>(Alternate Names: Spiking Concentration)</p> <p>XML Tag: SpikingAmountDoseAddedMeasure</p>	<p>concentration of an analyte that has been spiked into an aliquot at any time during the analysis process.</p> <p>For Microorganisms: The dose of method organisms/cells added to a sample to be analyzed for calculating analytical precision and accuracy where the value reported use the same unit of measure reported for 2.1.2 Result Value Unit of Measure.</p>		

Data Element Name	Data Element Definition	Notes	Format
7.10.2 Spiking Amount or Dose Added Unit of Measure XML Tag: SpikingAmountDoseAddedUnitMeasureText	The code representing the name of the standard of measurement used for amount (weight or volume) or final concentration of an analyte that has been spiked into an aliquot during an analysis.	The follow are possible values and other values may be used. - $\mu\text{g/L}$ - micrograms per liter - pCi/L - pico-Curies per liter - CFU/mL - colony forming units per milliliter	A(12)
7.11 Analytical Precision (Alternate Names: Precision of Value) XML Tag: AnalyticalPrecisionMeasure	A measure of the agreement among individual measurements of the same property in duplicate laboratory samples (duplicate laboratory spiked samples) under prescribed similar conditions to estimate variability in the measurement method or procedures.	Precision is expressed as: (A) Standard Deviation (SD) $\text{SD} = [\{ (x_i - \text{avg } x)^2 \} / (n-1)]$ (B) Percent Relative Standard Deviation (% RSD), $\% \text{ RSD} = (\text{SD} / \text{mean concentration}) \times 100$, or (C) Relative Percent Difference (RPD), $\text{RPD} = [(X_1 - X_2) / \{(X_1 + X_2)/2\}] \times 100$	A(12)
7.12 Analytical Accuracy/Error XML Tag: AnalyticalAccuracyErrorMeasure (Alternate Names: Bias of Value; Analytical Accuracy Measure)	The measure of confidence in a result.	(A) Accuracy is a measure of confidence in a measurement. Accuracy can be assessed by calculating: (1) % deviation = $[(\text{average } x - \text{true value}) / \text{true value}] \times 100$; or (2) % recovery (Rec) = $[(\text{amount found in Spiked sample} - \text{amount found in sample}) / \text{amount in spiked sample}] \times 100$. Accuracy describes how close a result is to the true value measured through the use of spikes, surrogates, standards, or performance evaluation samples. (B) Error (1) Type I error (False positive) - a numerical value indicating the	A(12)

Data Element Name	Data Element Definition	Notes	Format
		<p>magnitude of Type I error.</p> <p>(2) Type II error (False Negative) - a numerical value indicating the magnitude of Type II error.</p>	
7.13 Bias Number (Alternate Names: Bias of Value) XML Tag: BiasNumber	The number that details the systematic or persistent distortion of a measurement process that causes errors in one direction.	The number details the systematic or persistent distortion of a measurement process that causes errors in one direction. Bias poses the potential for over- or under-estimating the amount of something (e.g., concentration of a contaminant) in an environmental sample. The simple estimate of actual bias is the difference between the average value of a set of measurements of a standard and the reference standard value. A better estimate is the actual bias divided by the true value and expressed as a percentage (percent bias).	N(6)
7.14 Controls <i>Definition:</i> Identifies the genus and species used as positive and/or negative controls for determining accuracy. <i>Note:</i> Some of these data elements only apply to microbiological samples. See the comments column.			
7.14.1 Positive Control Name XML Tag: PositiveControlName	The genus and species name of the organisms used as a positive control for determining accuracy	This data element is to be used for microbiologicals only. See Section 2.2 for data elements needed to identify any analyte.	A(60)
7.14.2 Positive Control Result Text XML Tag: PositiveControlResultText	The text describing the analytical result of measuring the positive control.	<p>This data element is to be used for microbiologicals only.</p> <p>Permitted Values:</p> <ul style="list-style-type: none"> - Present - Absent 	

Data Element Name	Data Element Definition	Notes	Format
7.14.3 Negative Control Name XML Tag: NegativeControlName	The genus and species name of the organisms used as a negative control for determining accuracy.	This data element is to be used for microbiologicals only. See Section 2.2 for data elements needed to identify any analyte.	A(60)
7.14.4 Negative Control Result Text XML Tag: NegativeControlResultText	The text describing the analytical result of measuring the negative control.	This data element is to be used for microbiologicals only. Permitted values: - Present - Absent	A(12)
7.15 Detection/Quantitation Level Data Elements <i>Definition:</i> Identifies a numeric value with units of measure for describing detection/quantitation information related to the sample.			
7.15.1 Detection/Quantitation Level Measure (Alternate Names: Detection Limit; Detection Level) XML Tag: DetectionQuantitationLevelMeasure	The measure that describes the quantity of analyte below which the sample analysis equipment will not detect the analyte accurately.	If the lowest numerical value that a laboratory can report reliably for a test result based on the laboratory's experience with the method and equipment is different from the Detection Limit and set by Statute or Regulation, then it should be reported as the Regulatory Reporting Level (see 7.16).	N(14)
7.15.2 Detection/Quantitation Level Unit of Measure Name XML Tag: DetectionQuantitationLevelUnitMeasureName	The code representing the name of the standard of measurement used for the measure that describes the quantity of analyte below which the sample analysis equipment will not detect the analyte accurately.	The follow are possible values and other values may be used. - µg/L - micrograms per liter - pCi/L - pico-Curies per liter - CFU/mL - colony forming units per milliliter	A(12)

Data Element Name	Data Element Definition	Notes	Format
7.16 Detection/Quantitation Level Type (Alternate Name: Detection Limit Type) XML Tag: DetectionQuantitationLevelTypeText	The text describing the type of detection level used in the analysis of a chemical constituent.	The follow are possible values and other values may be used. <ul style="list-style-type: none"> - Instrument detection level - Method detection level - Estimated detection level - Practical quantitation limit - Limit of detection - Long-term method detection level - Regulatory reporting level-Drinking Water Maximum Contaminant Level - Regulatory reporting level-Water quality standard or criteria - Regulatory reporting level-Alternate concentration level - Other 	A(12)
7.17 QA/QC Exception Flags XML Tag: QAQCExceptionFlagsText	A flag indicating an exception to the stipulated analytical procedure used to generate the result.	Permitted values: <ul style="list-style-type: none"> - Y -Yes - N - No 	A(1)
7.18 QA/QC Exception Comment Text XML Tag: QAQCExceptionCommentText	The text providing descriptive information about reason/s for a QA/QC exception flag being set to Yes.	Some reasons for setting a QA/QC flag to Yes include: <ul style="list-style-type: none"> - Analyzed past holding time - Dual quantification difference > 40% RPD - Estimated value quantification does not meet standard operating (injection precision not met) - Spike recovery outside of control limits - Spike out of procedures (SOP) criteria - Duplicate calibration range 	A(255)

Data Element Name	Data Element Definition	Notes	Format
7.19 QA/QC Comment Field XML Tag: QAQCCommentFieldText	Text noting other aspects of the quality assurance and control.		A(255)

¹ The National Institute of Standards and Technology (NIST) Pub 811, 1995 Edition, Guide for the Use of the International System of Units (SI) and ANSI X3.50-1986: Representations for U.S. Customary, SI and Other Units with Limited Character Sets are two resources for standard units of measure.